letter to Heathorn: Pingree reads it as "6 February 1850," with Huxley "fifty miles" from Sydney, within "one hour's sail" (50 mph!); it looks to me like 4 February, thirty miles out, within six hours' sail—which at least is a more acceptable speed for a rotting, jury-rigged "donkey-frigate" like the *Rattlesnake.*

Other mistranscriptions can lead to some interesting finds. Notebook 14 (misdated "1880": Huxley Papers, Vol. 63) is in fact a further *Rattlesnake* notebook for 1850–1851. Another listed "1847" (Huxley Manuscripts, Ser. 3, Vol. 124) actually contains student notes, mostly written in 1845 with some later interpolations—which makes it the only record in the archives of his comparative anatomy and chemistry classes at Charing Cross Hospital.

Leonard Huxley's *Life and Letters of Thomas Henry Huxley* is now historiographically creaky. And the letters on this microfilm highlight the periodic bowdlerization. Some contractions are dramatic: three paragraphs, 250 words long, could be boiled down to 95 words (cf. *Life,* Vol. 1, pp. 80–81, with Huxley to Heathorn, 6 Jan. 1852). Others leave a slant that partisan historians have bent further. Take one notorious case. Writing to Heathorn (15 Mar. 1852; cf. *Life,* Vol. 1, pp. 97–98), Huxley swore that Richard Owen—the future Darwinian *bête noire*—would "pooh-pooh" his paper on mollusks and block its publication (in fact he did not). By expurgating the text, Leonard Huxley tarred Owen as the unprovoked "aggressor" who sparked the famous feud. But the published letter was shorn of two critical paragraphs, in which Huxley admits that he had lost his temper while talking to Owen the previous day and ended up damning him to his face as an arch-conservative. This letter might not tell us about the larger context of their enmity, but it warns us against the moral indignation that has suffused a century of Darwinian history. Perhaps, with this microfilm making Huxley's original work accessible, we will see more balanced accounts of Huxley in his Dickensian society.

The filming itself was a gigantic undertaking, part of a five-year project. Research Publications is currently photographing the Darwin Manuscripts and Pamphlet Collection at Cambridge University, and the first units of this should be available by the time this notice appears.

The technical quality of the film is superb. Even the creases and thumbprints are visible. Frames have been inserted in place to remind readers that a page is missing or is out of sequence. The reels open with the relevant catalogue entry, and an accompanying printed text facilitates the search-and-find operation. This microfilm is now an essential tool for the shop-floor stewards of the Darwin Industry. But its appeal will be much wider, to students of Victorian religion and literary criticism, paleontology and ethnology, professionalization and popular science. Huxley was a man of many parts, and this microfilm captures them all.

ADRIAN DESMOND

Bruce J. Hunt. *The Maxwellians.* (Cornell History of Science Series.) xiv + 266 pp., illus., figs., app., bibl., index. Ithaca, N.Y./London: Cornell University Press, 1991. $34.95.

This book is a history of the development of James Clerk Maxwell's electrodynamics from the publication of his *Treatise on Electricity and Magnetism* in 1873 to the turn of the century. The subject matter includes Oliver Heaviside's rationalization of Maxwell's conceptual framework, the impact of the wave experiments of Oliver Lodge and Heinrich Hertz, the localization and transport of energy, and the adaptation of ether theory and electrodynamics to accommodate the electron. The subject is made readable and given a human dimension by skillful interweaving of biographical information and by extensive and very apt quotation from contemporaneous material. The scientific portraits of George FitzGerald, Joseph Larmor, and the later Heaviside are particularly interesting.

There is inevitably some cost involved in constructing an accessible narrative from so complex a subject, and occasionally more thematic analysis would be welcome even at the expense of smooth development. For example, the skin effect and transmission line controversy illustrates theory at the level of applications and the uses of popular, if uncomprehending, endorsement of scientific claims. Heaviside himself offered many levels of argument, depending on the presumed audience, and if he could have put together a justification based on the fact that hot air rises, then he would have used it somewhere. It would have been valuable in the context of the book to assess the controversy with particular reference to Maxwellian theory: if it reflected uncertainties about Maxwell's theoretical physics; if the skin effect constituted evidence for Maxwell's theory as against, say, Continental theories; or if the controversy was unreal because acceptable premises did exist, Maxwellian or not, and mathematical complication alone was the barrier.

The prominence given to Lodge in the context of ether models could leave an exaggerated impression of his contribution to mathematical theory. He was a significant experimentalist, expositor, and middleman between theorists and the public, so the images through which he interpreted theory to himself and others are certainly historically important, but it is a pity to blur a useful distinction by appearing to miscast him.

Although adequate reference is made to the secondary literature, not much guidance to it is given, so the reader might be left unaware of other points of view. Bruce Hunt's account invites comparison with Jed Z. Buchwald's *From Maxwell to Microphysics* (Chicago, 1985). Buchwald considers that the reification of the electron demanded such extensive revision of Maxwell's original perspective that it should be regarded as introducing a conceptual discontinuity. Hunt, on the other hand, depicts a developmental process into which point sources could after a fashion be assimilated. This viewpoint was cultivated by a line of ether theorists for thirty years and finally died from natural causes rather than through the perception of irresolvable difficulties. The two accounts are not contradictory; the time lapse between conceptual revision and establishment turnover can act as a driving force, a subject that deserves more historial attention.

D. W. JORDAN

Hans-Werner Schütt. *Eilhard Mitscherlich: Baumeister am Fundament der Chemie*. (Abhandlungen und Berichte, N.S., 8.) 192 pp., illus., bibl., indexes. Munich: Deutsches Museum, in Kommission bei Oldenbourg Verlag, 1992.

Despite a recent rise of interest in the study of nineteenth-century chemistry, pursuit of this subject has been hampered by a dearth of detailed monographs focusing on particular individuals and particular localities. In writing this biography of one of the most significant German chemists of the first half of the century, Hans-Werner Schütt has produced an important work that meets the highest professional standards.

Eilhard Mitscherlich studied oriental languages and medicine in Heidelberg and Göttingen before arriving in Berlin in 1818 to study chemistry with the botanist H. F. Link. This is a bizarre trajectory, and Schütt struggles valiantly to elucidate the young man's twists and turns; here, as repeatedly throughout the book, the author is frustrated in his attempt to uncover very much of the inner life of this interesting man. The problem is not just with the sources, for Schütt has in fact delved deeply and widely in surviving correspondence and university records. It was the subject himself who hid behind the veil, both from his contemporaries and from the historian. Mitscherlich was apparently profoundly uninterested in politics, religion, philosophy, or art; Schütt notes with amazement that he was unable to find a single subsequent reference to "Orientalistik" in the Mitscherlich *Nachlass*.

One thing Mitscherlich did have in abundance was good fortune. After less than a year in Link's laboratory he encountered and studied the mineralogical phenomenon subsequently named isomorphism; this discovery and its maker soon thereafter came to the attention of the great Jacob Berzelius, who happened to be traveling in Germany at the time. Asked by the Prussian ministry to recommend a successor to Heinrich Klaproth at the University of Berlin, Berzelius named the hitherto-unknown *Praktikant*. The ministry agreed, provided only that Mitscherlich study directly under Berzelius in Stockholm. Thus it happened that Mitscherlich became first Berzelius's protégé, then professor of chemistry at Berlin. There he remained more than forty years, until his death in 1863.

Although isomorphism remained Mitscherlich's greatest discovery, important contributions flowed regularly from his laboratory, including work in organic, inorganic, geological, and biological chemistry. Schütt maintains a tight focus on Mitscherlich's scientific career, in the process often illuminating Mitscherlich's professional context in significant ways. We learn much that was hitherto obscure about his laboratory management, his teaching and textbook writing, and his industrial connections (though here Schütt once more laments his subject's tight-lipped habits). Schütt argues that the Prussian